

Installation and Startup

The following topics in this chapter describe the preinstallation considerations and installation and startup procedures for the switch:

- Preinstallation considerations
- Procedures for installing the switch on a table, rack, and wall and powering up the switch
- Procedures for assigning IP information and a password to the switch
- Procedures for connecting the switch to other devices
- Procedures for accessing the management interfaces

Preparing for Installation

This section covers the following topics:

- Warnings and regulatory statements
- Site preparation considerations
- Contents of the shipping container
- Information for verifying that the switch is operational

Warnings

Translated versions of the following safety warnings are provided in Appendix C, “Translated Safety Warnings.”



Warning Only trained and qualified personnel should be allowed to install or replace this equipment.



Warning Do not work on the system or connect or disconnect cables during periods of lightning activity.



Warning Unplug the power cord before you work on a system that does not have an on/off switch.



Warning Do not touch the power supply when the power cord is connected. For systems with a power switch, line voltages are present within the power supply even when the power switch is off and the power cord is connected. For systems without a power switch, line voltages are present within the power supply when the power cord is connected.



Warning Read the installation instructions before you connect the system to its power source.



Warning This product relies on the building’s installation for short-circuit (overcurrent) protection. Ensure that a fuse or circuit breaker no larger than 120 VAC, 15A U.S. (240 VAC, 10A international) is used on the phase conductors (all current-carrying conductors).



Warning To prevent the switch from overheating, do not operate it in an area that exceeds the maximum recommended ambient temperature of 113°F (45°C). To prevent airflow restriction, allow at least 3 inches (7.6 cm) of clearance around the ventilation openings.



Warning The device is designed to work with TN power systems.



Warning This equipment is intended to be grounded. Ensure that the host is connected to earth ground during normal use.



Warning When installing the unit, the ground connection must always be made first and disconnected last.



Warning Do not stack the chassis on any other equipment. If the chassis falls, it can cause severe bodily injury and equipment damage.



Warning Care must be given to connecting units to the supply circuit so that wiring is not overloaded.



Warning A voltage mismatch can cause equipment damage and may pose a fire hazard. If the voltage indicated on the label is different from the power outlet voltage, *do not connect the chassis to that receptacle.*



Warning Ultimate disposal of this product should be handled according to all national laws and regulations.

EMC Regulatory Statements

U.S.A.

U.S. regulatory information for this product is in the front matter and in Appendix C, “Translated Safety Warnings,” of this guide.

Taiwan

警告使用者：
這是甲類的資訊產品，在居住的環境中使用時，可能會造成射頻干擾，在這種情況下，使用者會被要求採取某些適當的對策。

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Site Preparation

When determining where to place the switch, ensure the following conditions are met:

- Operating environment is within the temperature, humidity, and altitude ranges listed in Appendix A, “Technical Specifications.”

If the switch is installed in a closed or multirack assembly, the temperature might be greater than normal room temperature.

- Airflow around the switch and through the vents is unrestricted.
- Cables (such as Category 3, 4, or 5 straight-through or crossover cables and fiber-optic cables) are at hand to connect the switch to the other devices in your network.
- Cable distances from the switch to network equipment and workstations are within the limits described in Appendix B, “Connectors and Cables.”
- Clearance to front and rear panels is such that:
 - Front-panel indicators can be easily read.
 - Access to the front- and rear-panel ports and connectors is sufficient for connecting cables.
 - Rear-panel power connectors are within reach of power sources.
- Cabling is away from sources of electrical noise, such as radios, power lines, and fluorescent lighting fixtures.

Package Contents

Note Carefully remove the contents from the shipping container, and check each item for damage. If any item is missing or damaged, contact your Cisco representative or reseller for support. Return all packing materials to the shipping container and save it.

Each switch is shipped with the following items:

- *Quick Start Guide: Catalyst 1900 Series Ethernet Switches*
- This *Catalyst 1900 Series Installation and Configuration Guide*
- Cisco Documentation CD-ROM
- Mounting kit:
 - Four rubber feet for installing the switch on a table or shelf
 - Two mounting brackets
 - Four Phillips flat-head screws and four Phillips truss-head screws for attaching the mounting brackets to the switch
 - Four Phillips machine screws for attaching the mounting brackets to a rack
 - One cable guide and one black Phillips machine screw for attaching the cable guide to one of the mounting brackets
- RJ-45-to-RJ-45 rollover console cable and RJ-45-to-DB-9 female DTE adapter (labeled Terminal)
- AC power cord
- Cisco Information Packet, containing warranty, safety, and support information

Powering Up and Using POST to Test the Switch

Before installing and connecting the switch to other network devices, you might want to power up the switch and verify that it is operational. To power up the switch, connect one end of the AC power cord to the AC power connector on the switch and the other end of the power cord to a power outlet. If your switch connects to the RPS, see the “Power Connectors” section on page 1-12 and the Cisco RPS documentation.

As the switch powers up, it begins the power-on self-test (POST), the 13 individual tests listed in Table 5-2. The port LEDs show which test the switch is executing. At power up, all port LEDs are green. As each test executes, a port LED turns off. For example, if the LED for port 4x is off, the console port test (test 4) is being executed. On a switch with 12 10BaseT ports, the port LED for port Ax (or port A) turns off first, followed by ports 12x, 11x, 10x, and so on. On a switch with 24 10BaseT ports, the port LED for port 16x turns off first, followed by ports 12x, 11x, 10x, and so on. The LEDs for ports 15x, 14x, 13x are not used during POST. The LED for port Bx is not used during POST.

When POST ends, the following conditions can exist:

- All POST tests passed—If the SYSTEM LED is green and all of the port LEDs are off, no problems were detected. The switch is fully operational.

Note If there are devices connected to the switch ports when POST ends, Spanning-Tree Protocol (if enabled) immediately turns those port LEDs amber. The forwarding state, even if the Port Fast mode is enabled, is delayed to allow the Spanning-Tree Protocol to discover the network topology and to ensure no temporary loops are formed. Spanning-tree discovery takes approximately 30 seconds, and no packets are forwarded during this time. After the initial discovery, ports with Port Fast mode enabled go directly from the blocking state to the forwarding state.

- Nonfatal failure(s) detected—If the SYSTEM LED is amber and the switch is functional, POST detected one or more nonfatal failures. The switch is still operational and can forward packets, but it might not operate optimally. The Management Console Logon Screen displays the POST failure message that identifies the nonfatal failure(s) detected.

- Fatal failure(s) detected—POST completes all tests, even after detecting a fatal failure. If the SYSTEM LED is amber and one or more of the port LEDs are amber, POST detected one or more fatal failures. The switch is not operational, the management console is not available, and the amber port LED(s) indicate which test(s) failed.

The “Understanding POST Failures” section on page 5-7 provides additional information, including the possible causes of nonfatal and fatal failures. For information about how to display POST results, see the “Starting Up the Switch and Displaying the POST Results” section on page 5-12.

Note Inform your system administrator about any POST failures. Contact your Cisco representative or reseller for support if any POST failures are detected.

Installing the Switch on a Table or Shelf



Caution Before you perform the following steps, be sure the switch is powered off and is not connected to a power source.

To install the switch on a table or shelf, follow these steps:

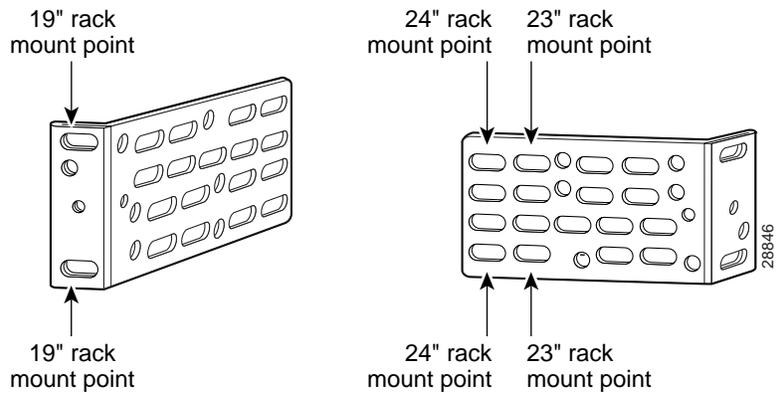
- Step 1** Locate the adhesive strip with the rubber feet that shipped with the switch.
- Step 2** Attach the rubber feet to the round recesses on the bottom corners of the switch.
- Step 3** Place the switch on a table or shelf close to an AC power receptacle.

Continue to the procedures in the “Connecting to the Console Port” section on page 2-16.

Installing the Switch in a Rack

The rack-mounting brackets supplied with the switch can be attached to a 19-, 23-, or 24-inch rack. Figure 2-1 shows which mounting holes attach to the rack.

Figure 2-1 **Bracket Mounting Points**





Caution Before you perform the following steps, be sure the switch is powered off and is not connected to a power source.

Note Some switches are shipped with screws installed in the top rack-mounting holes closest to the front panel. If you want to rack-mount the switch with the front panel forward, remove these screws before attaching the mounting brackets. Do not use these screws to attach the mounting brackets to the switch. Use the screws supplied with the brackets.

To attach the brackets and install the switch in 19-, 23-, and 24-inch racks, follow these steps:

Step 1 Place the switch on a level surface.

Step 2 Use two of the supplied Phillips flat-head or truss-head screws to attach a mounting bracket to each side of the switch. Secure all four screws tightly, but do not overtighten them.

The bracket orientation and the screws you use depend on whether you plan to use a 19-, 23-, or a 24-inch rack:

- For a 19-inch rack-mount, use the Phillips flat-head screws to attach the long side of the bracket to the switch.
- For a 23- or 24-inch rack-mount, use the Phillips truss-head screws to attach the short side of the bracket to the switch.

Figure 2-2, Figure 2-3, and Figure 2-4 show how to attach one bracket to one side of the switch. Follow the same steps for the opposite side.

Installing the Switch in a Rack

Figure 2-2 Attaching Brackets for 19-, 23-, and 24-inch Racks (Front Panel Forward)

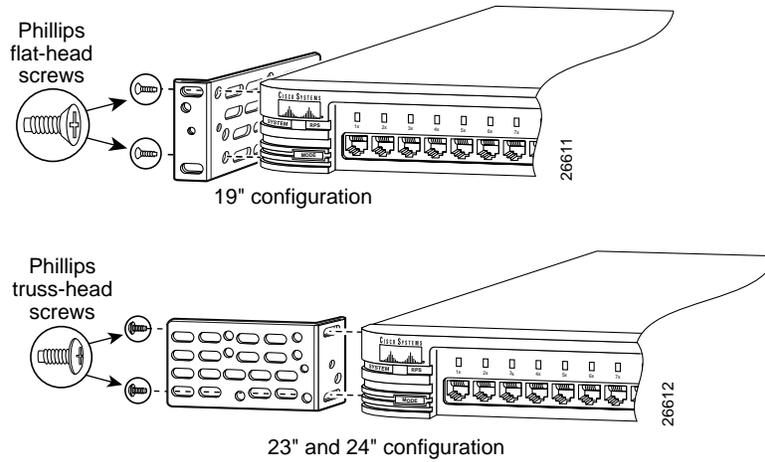


Figure 2-3 Attaching Brackets for 19-, 23-, and 24-inch Racks (Rear Panel Forward)

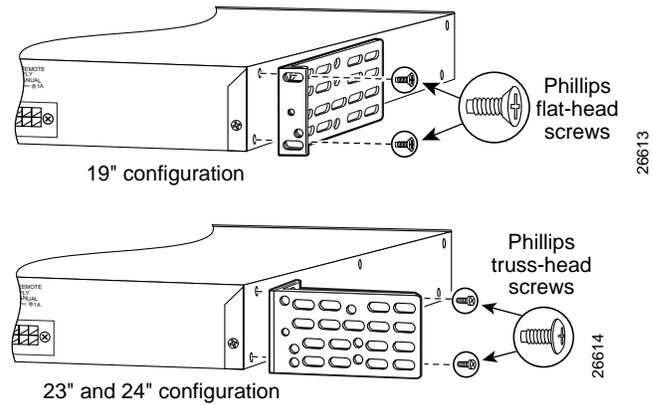
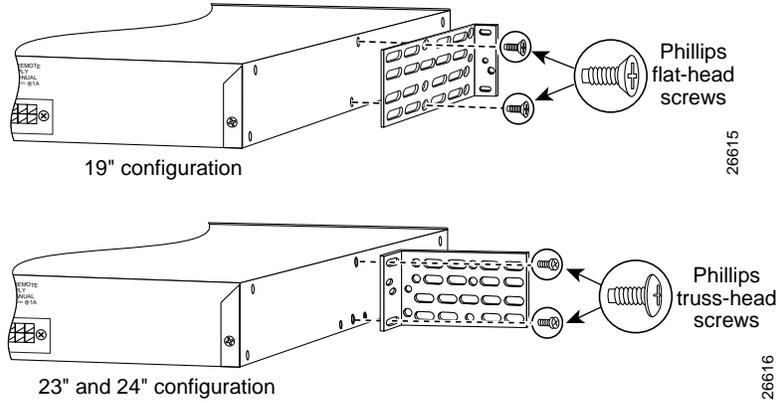
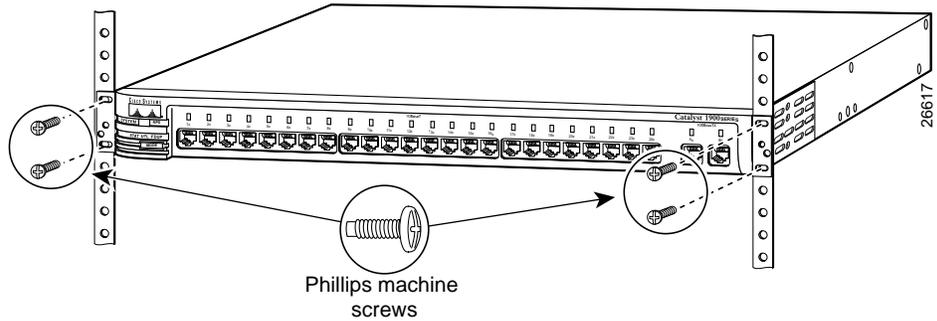


Figure 2-4 Attaching Brackets for 19-, 23-, and 24-inch Racks (Mid-Mount)



Step 3 Use the four supplied Phillips machine screws to attach each bracket to the rack, as shown in Figure 2-5.

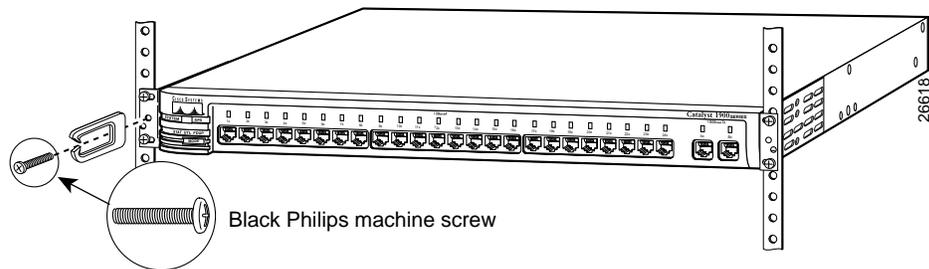
Figure 2-5 Attaching the Switch to a Rack (Front Panel Forward)



Installing the Switch in a Rack

- Step 4** Attach the cable guide and secure the cables in the cable guide so that the cables do not obscure the switch or other devices in the rack. If the switch is in a 19-, 23-, or 24-inch rack, you can use the supplied black screw to attach the cable guide to the left or right rack-mount bracket, as shown in Figure 2-6.

Figure 2-6 Attaching a Cable Guide



Continue to the procedures in the “Connecting to the Console Port” section on page 2-16.

Installing the Switch on a Wall



Caution Before you perform the following steps, be sure the switch is powered off and is not connected to a power source.

Note Some switches are shipped with screws installed in the top rack-mounting holes closest to the front panel. Do not use these screws to attach the mounting brackets to the switch. Use the screws supplied with the brackets.

To attach the brackets and attach the switch parallel or vertically to a wall, follow these steps:

- Step 1** Place the switch on a level surface.
- Step 2** Use two of the supplied Phillips truss-head or flat-head screws to attach a mounting bracket to each side of the switch. Secure all four screws tightly, but do not overtighten them.

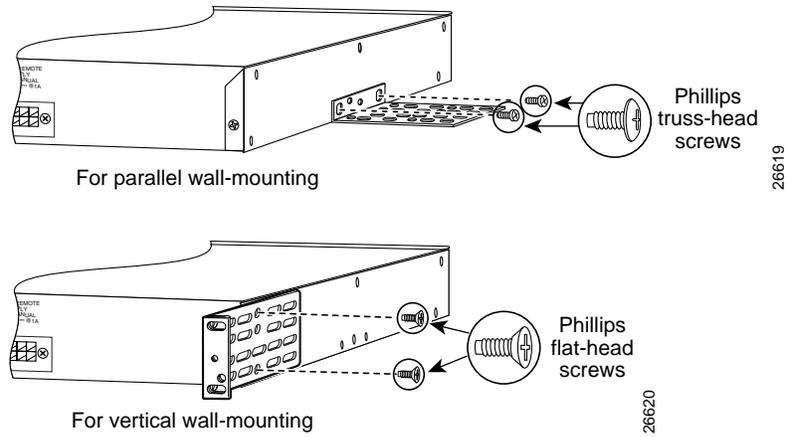
The bracket orientation depends on whether you plan to attach the switch parallel or vertically to a wall:

- For a parallel wall-mount, use the Phillips truss-head screws to attach the short side of the bracket to the switch.
- For a vertical wall-mount, use the Phillips flat-head screws to attach the long side of the bracket to the switch.

Figure 2-7 shows how to attach one bracket to one side of the switch. Follow the same steps for the opposite side.

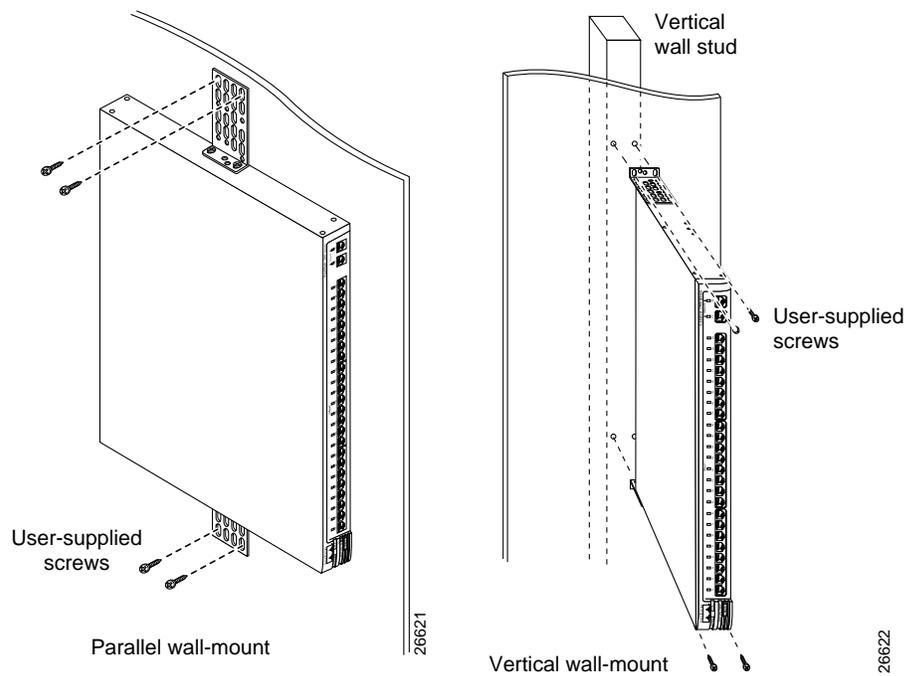
Installing the Switch on a Wall

Figure 2-7 Attaching Brackets for Parallel and Vertical Wall-Mounting



Step 3 Attach the switch to a wall. For the best support of the switch and cables, make sure the switch is securely attached to a wall stud or to a firmly attached plywood mounting backboard, as shown in Figure 2-8. You must supply your own screws to attach the switch to the wall.

Figure 2-8 Attaching the Switch to the Wall



Continue to the procedures in the “Connecting to the Console Port” section on page 2-16.

Connecting to the Console Port

Note The rollover console cable and a RJ-45-to-DB-9 female DTE adapter are supplied. If your management station requires a different adapter—such as a RJ-45-to-DB-25 female DTE or RJ-45-to-DB-25 male DCE adapter—you must provide it. For pinout information, see the “Console Port” section on page B-6.

To connect the switch RJ-45 console port to a management station or modem, you must use the supplied RJ-45-to-RJ-45 rollover console cable and the appropriate adapter and follow these steps:

Step 1 Make sure the settings of the switch console port and the management station or the modem match.

These are the default settings of the switch console port:

- 9600 baud
- 8 data bits
- 1 stop bit
- No parity
- No flow control

Although the Match Baud Rate option (autobaud) matches the baud rate of an incoming call, the switch uses its configured rate when dialing out. When a call is completed and the line disconnects, the switch always returns to its configured baud rate.

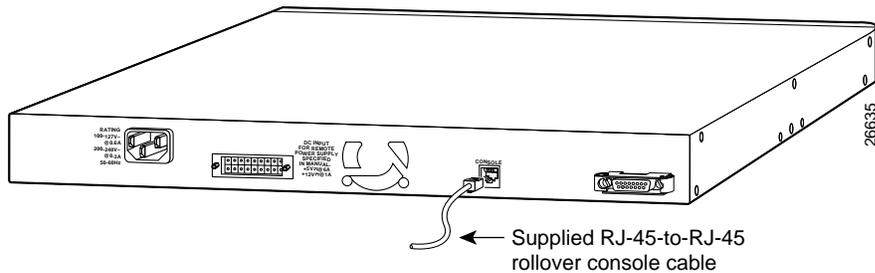
You can change the console port settings from the Console and Upgrade Configuration Page (see the “Changing the Console Port Settings and Upgrading the Firmware” section on page 3-59) or the RS-232 Port Configuration Menu (see the “RS-232 Interface Configuration Menu” section on page 4-74).

Step 2 Connect one end of the supplied rollover console cable to the console port, as shown in Figure 2-9.



Caution Do not connect an actual telephone line, an ISDN line, or an Ethernet cable to this console port. Damage to the switch can result. Make sure you use the supplied RJ-45-to-RJ-45 rollover console cable and the appropriate adapter to connect the console port to the management station or modem.

Figure 2-9 Connecting to the Console Port



Step 3 Attach the appropriate adapter, such as the supplied RJ-45-to-DB-9 female DTE adapter (labeled Terminal), to a management station or modem.

Note If you are connecting the switch to a Sun workstation (or to a management station with a female DB-25 serial connector), use a male-to-male gender changer to attach the supplied RJ-45-to-RJ-45 rollover console cable and a RJ-45-to-DB-25 female DTE adapter to the management station. You must provide the gender changer and the DTE adapter because they are not supplied with the switch.

Powering Up the Switch

Step 4 Connect the other end of the supplied rollover console cable to the adapter.

Step 5 From your management station, start the terminal emulation program.

Continue to the procedures in the “Powering Up the Switch” section on page 2-18.

Connector and cabling specifications for the console port are in Appendix B, “Connectors and Cables.”

Powering Up the Switch

If your configuration has an RPS, see the “Power Connectors” section on page 1-12 and the Cisco RPS documentation.

Note The Catalyst 1900 switches do not support the fully-redundant configurations that are described in the Cisco RPS documentation. In addition, we recommend that you do not use the redundant-with-reboot configuration with the switch connected to the RPS and to the AC power plug, due to the reboot and downtime—approximately 30 seconds. If you do use the redundant with reboot configuration, always power up the switch before you power up the RPS to ensure correct operation. In circumstances where the RPS is first to power up, the LEDs might not indicate the actual state.

To power up the switch internal power supply after you install and connect it to a management station, follow these steps:

Step 1 Make sure that you have started the emulation software program (such as ProComm, HyperTerminal, tip, or minicom) from your management station.

Step 2 Connect one end of the AC power cord to the AC power connector on the switch.

Step 3 Connect the other end of the power cord to an AC power outlet.

As the switch powers up, it starts the series of self-tests described in the “Powering Up and Using POST to Test the Switch” section on page 2-6. When the switch completes POST, the Management Console Logon Screen (Figure 2-10) is displayed on the management station.

Continue to the procedures in the “Assigning IP Information and a Password to the Switch” section on page 2-19.

Assigning IP Information and a Password to the Switch

After POST completes, the Management Console Logon Screen (Figure 2-10) is displayed on the management station. From this logon screen, you can assign IP information and a privileged-level password to the switch. This section describes the importance of IP information and a password to the switch and describes how to assign this information to the switch.

IP Information

IP information identifies the switch on the network and is required to configure and monitor it as an individual switch. When you assign the switch its own IP address, you can manage it from its management interfaces (switch manager, management console, SNMP, or CLI). The switch retains its own IP address even when it joins or leaves a switch cluster.

If you do not assign an IP address to the switch, you must add the switch to a switch cluster and manage it through the command switch. Whether or not the switch has its own IP address, when the switch is a cluster member, it is managed and communicates with other member switches through the IP address of the command switch. If the switch leaves the cluster and it does not have its own IP address, you then must assign IP information to it to manage and monitor it as a nonmember switch.

Note We recommend that you assign an IP address to the switch even if the switch is or will be a cluster member so that if the switch is removed from the cluster, it remains manageable as a nonmember switch.

For more information about IP information, see the “Assigning or Changing IP Information” section on page 3-70 or the “IP Configuration Menu” section on page 4-20.

Assigning IP Information and a Password to the Switch

Privileged-Level Password

A privileged-level password provides security against unauthorized access to the management interfaces (switch manager, management console, or CLI) and is required to access these interfaces.

Note When the switch is shipped, no password is assigned to it. However, a privileged-level password is required to access the Catalyst 1900 Switch Manager or to use Telnet access from a remote station. If you do not assign a password, this access will not be available until the switch joins a cluster or until you assign the switch a privileged-level password from the management console (see the “Console Settings Menu” section on page 4-6) through a direct connection to the switch console port.

When your switch is a cluster member, the highest privileged-level password for the command switch is the privileged-level password to the switch. The command-switch password overwrites any switch-specific passwords.

Note We do not recommend changing the password while the switch is a cluster member. This will cause a password mismatch, and you will have to manually enter the cluster member password to display the switch manager from the command switch. For more information about passwords, see the “Changing the Switch Password” section on page 3-8 or the “Changing the Switch Password” section on page 4-8.

To assign IP information and a password to the switch, follow these steps from your management station:

Step 1 Enter the **[I] IP Address** option on the Management Console Logon Screen (Figure 2-10).

Figure 2-10 Management Console Logon Screen

```
Catalyst 1900 Management Console
Copyright (c) Cisco Systems, Inc. 1993-1999
All rights reserved.
```

```
Standard Edition Software
Ethernet address: 00-E0-1E-7E-B4-40
```

```
PCA Number: 73-2239-01
PCA Serial Number: SAD01200001
Model Number: WS-C1924-A
System Serial Number: FAA01200001
```

```
-----
```

```
User Interface Menu
```

```
[M] Menus
[I] IP Address
[P] Console Password
```

```
Enter Selection:
```

The IP Configuration Menu (Figure 2-11) is displayed.

Figure 2-11 IP Configuration Menu

```
Catalyst 1900 - IP Configuration
```

```
Ethernet Address: 00-E0-1E-7E-B4-40
```

```
-----Settings-----
[I] IP address 0.0.0.0
[S] Subnet mask 0.0.0.0
[G] Default gateway 0.0.0.0
[M] IP address of DNS server 1 0.0.0.0
[N] IP address of DNS server 2 0.0.0.0
[D] Domain name
[R] Use Routing Information Protocol Enabled
```

```
----- Actions -----
[P] Ping
[C] Clear cached DNS entries
[X] Exit to previous menu
```

```
Enter Selection:
```

Assigning IP Information and a Password to the Switch

Step 2 Enter the **[I] IP address** option from the IP Configuration Menu, and enter the IP address of the switch at the prompt. Use dotted quad format (nnn.nnn.nnn.nnn).

You can also assign the subnet mask and default gateway from this menu. If you do not know the IP information for the switch, contact your system administrator.

Note If the switch is connected to a network that has a Dynamic Host Configuration Protocol (DHCP)/Bootstrap Protocol (BOOTP) server, the server automatically assigns IP information to the switch.

Step 3 Enter the **[X] Exit** option to redisplay the Management Console Logon Screen.

Step 4 Enter the **[P] Console Password** option on the Management Console Logon Screen, and enter a 4- to 8-character password at the prompt. The password you assign from this option is an unencrypted privileged-level password that controls access to the switch management interfaces.

For more information about assigning passwords, see the “Changing the Switch Password” section on page 4-8.

Step 5 Reenter the password at the confirmation prompt.

Step 6 Press any key to redisplay the Management Console Logon Screen.

Note Even if the switch has an IP address, the **[I] IP Address** and **[P] Console Password** options are displayed if a switch password has not been assigned.

Continue to the procedures on connecting the switch to the other devices in your network.

For more information about IP information and passwords, see Chapter 3, “Configuring and Monitoring from the Switch Manager,” or Chapter 4, “Configuring and Monitoring from the Management Console.”

Connecting to the Switched 10BaseT Ports

You can connect the 10BaseT ports (1x through 12x or 1x through 24x) to 10BaseT-compatible network devices, such as workstations, hubs, servers, routers, and other switches. All connections between the switch and the attached device(s) must be within 100 meters.

You must provide the Category 3, 4, or 5 cable(s) to connect any of these ports to the other 10BaseT device(s). Because these ports are internally crossed, they require a *crossover* cable to connect to hubs or other switches. When connecting to workstations, servers, or routers, these ports require a *straight-through* cable.

Note Always observe these general rules when connecting devices: Use a straight-through cable to connect two ports when one of the ports is designated with an **X**. Use a crossover cable to connect two ports when both ports are designated with an **X**.

The default duplex mode of these ports is half duplex. To change the duplex mode of these ports to full duplex, use the switch manager, management console, or SNMP. (See the “Changing the Port Settings” section on page 3-15 or the “Port Configuration Menu” section on page 4-44.)

Note For information about using the Half-duplex back pressure option on the 10-Mbps ports, see the “Half-Duplex Back Pressure on 10-Mbps Ports” section on page 3-75 or the “System Configuration Menu” section on page 4-11.

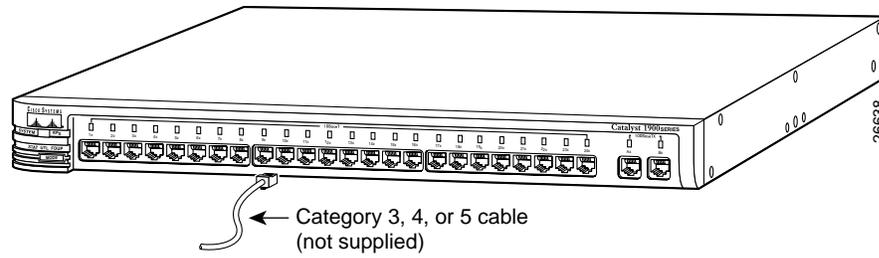
To connect a switch 10BaseT port to another 10BaseT device, follow these steps:

Step 1 Connect one end of the Category 3, 4, or 5 cable to the 10BaseT port on the switch. Figure 2-12 shows a Category 3, 4, or 5 cable being connected to one of the 10BaseT ports on a Catalyst 1924 switch.

Note When connecting the switch to workstations, servers, and routers, ensure that the cable is a straight-through, twisted-pair cable. When connecting the switch to other switches or hubs, use a crossover cable.

Connecting to the Switched 10BaseT Ports

Figure 2-12 Connecting to a 10BaseT Port



Step 2 Connect the other end of the cable to the 10BaseT port of the network device.

Step 3 Make sure that the LED for the port that you connected in Step 1 turns on.

If the port LED is not on, look for the following problems:

- The network device is not on.
- The Ethernet adapter in the network device is not operating correctly.
- The cable is damaged or is not connected correctly.
- You are using the wrong type of cable.

If you are connecting the switch 10-Mbps port to an end-station, which is configured for 100-Mbps, you need to reconfigure the end-station to operate at 10-Mbps.

Step 4 Repeat Steps 1 through 3 for each device that you are connecting to the switch.

Connector and cabling specifications for the 10BaseT ports are in Appendix B, "Connectors and Cables."

Connecting to the Switched 100BaseTX Ports

You can connect the 100BaseTX ports (Ax and Bx) to 100BaseTX-compatible network devices, such as hubs, servers, routers, and other switches. All connections between the switch and the attached device(s) must be within 100 meters.

You must provide the Category 5 cable(s) to connect any of these ports to the other 100BaseTX device(s). Because these ports are internally crossed, they require a *crossover* cable to connect to hubs or other switches. When connecting to workstations, servers, or routers, these ports require a *straight-through* cable.

Note Category 5 cable is required for 100BaseTX traffic. The 10BaseT ports can use Category 3 and 4 cables, but these cables do not work for the 100BaseTX ports.

Always observe these general rules when connecting devices: Use a straight-through cable to connect two ports when one of the ports is designated with an **X**. Use a crossover cable to connect two ports when both ports are designated with an **X**.

The default duplex mode of these ports is autonegotiate. To change the duplex mode of these ports to half-duplex, full-duplex, or full-duplex flow-control operation or to allow autonegotiation to determine the optimum configuration, use the switch manager, management console, or SNMP. (See the “Changing the Port Settings” section on page 3-15 or the “Port Configuration Menu” section on page 4-44.)

Note Duplex-mode autonegotiation is supported on the 100BaseTX ports only, not on the 100-Mbps fiber-optic ports or on the 10BaseT ports.

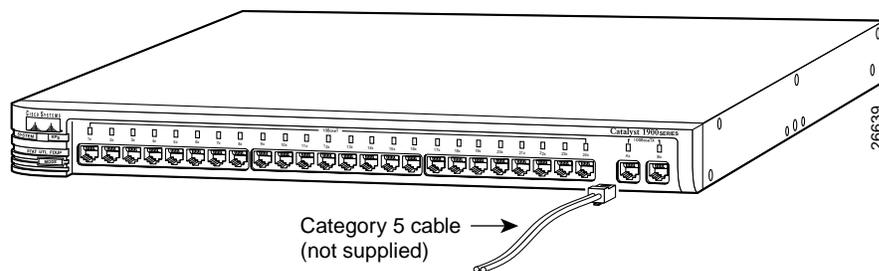
Connecting to the Switched 100BaseTX Ports

To connect a switch 100BaseTX port to another 100BaseTX device, follow these steps:

Step 1 Connect one end of the Category 5 cable to the 100BaseTX port on the switch. Figure 2-13 shows a Category 5 cable being connected to one of the 100BaseTX ports on a Catalyst 1924 switch.

Note When connecting the switch to workstations, servers, and routers, ensure that the cable is a straight-through, twisted-pair cable. When connecting the switch to other switches or hubs, use a crossover cable.

Figure 2-13 Connecting to a 100BaseTX Port



Step 2 Connect the other end of the cable to the 100BaseTX port of the network device.

Step 3 Make sure that the LED for the port that you connected in Step 1 turns on.

If the port LED is not on, look for the following problems:

- The network device is not on.
- The Ethernet adapter in the network device is not operating correctly.
- The cable is damaged or is not connected correctly.
- You are using the wrong type of cable.

If you are connecting the switch 100-Mbps port to an end-station, which is configured for 10-Mbps, you need to reconfigure the end-station to operate at 100-Mbps.

Step 4 Repeat Steps 1 through 3 for each device that you are connecting to the switch.

Connector and cabling specifications for the 100BaseTX ports are in Appendix B, "Connectors and Cables."

Connecting to the Switched 100BaseFX Port



Warning Class 1 laser product.



Warning Avoid exposure to the laser beam.



Caution Do not remove the rubber plugs from the fiber-optic port or the rubber caps from the fiber-optic cable until you are ready to connect the cable. The plugs and caps protect the fiber-optic port and cable from contamination and ambient light.

Note This section provides information and procedures for connecting to the 100BaseFX port (A), which uses a duplex SC connector. For information and procedures for connecting to the switch fiber-optic ports that use MT-RJ connectors, see the “Connecting to the Switched 100-Mbps Fiber-Optic Ports” section on page 2-29.

You can connect the 100BaseFX port (A) to other 100BaseFX-compatible network devices, such as servers, routers, and other switches. This port uses a duplex SC connector, and you must provide the 50/125- or 62.5/125-micron multimode fiber-optic cable to connect this port to the other 100BaseFX device.

The fiber-optic connections between the switch and the attached device can be as follows:

- If the switch port and the port on the attached device are configured for half-duplex operation, the connection can be over distances of up to 412 meters.
- If the switch port and the port on the attached device are configured for full-duplex operation, the connection can be over distances of up to 2 kilometers.

The default duplex mode of this port is half duplex. To change the duplex mode of this port to full-duplex or full-duplex flow control, use the switch manager, management console, or SNMP. (See the “Changing the Port Settings” section on page 3-15 or the “Port Configuration Menu” section on page 4-44.)

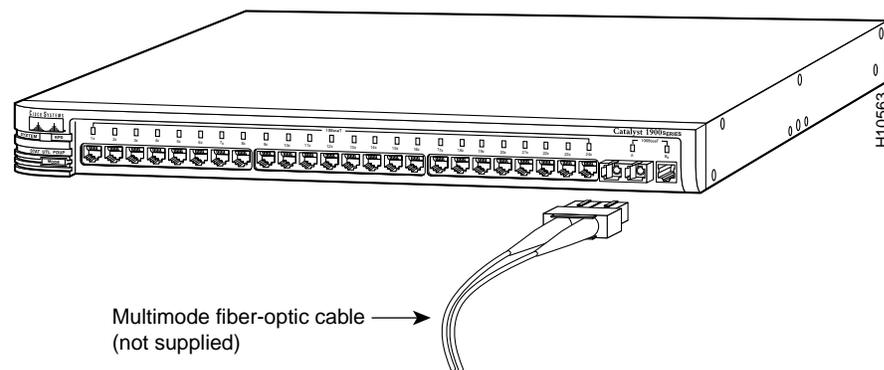
Note Duplex-mode autonegotiation is not supported on the 100BaseFX ports.

Connecting to the Switched 100BaseFX Port

To connect a switch 100BaseFX port to another 100BaseFX device, follow these steps:

- Step 1** Remove the rubber plugs from the port and the rubber caps from the cable connectors.
- Step 2** Connect one end of the fiber-optic cable to the 100BaseFX port on the switch. Figure 2-14 shows a multimode fiber-optic cable being connected to the 100BaseFX port on a Catalyst 1924C switch.

Figure 2-14 Connecting to the 100BaseFX Port



- Step 3** Connect the other end of the cable to the 100BaseFX port of the network device.

- Step 4** Make sure that the LED for the port that you connected in Step 1 turns on.

If the port LED is not on, look for the following problems:

- The network device is not on.
- The Ethernet adapter in the network device is not operating correctly.
- The cable is damaged or is not connected correctly.
- You are using the wrong type of cable.

If you are connecting the switch 100-Mbps port to an end-station, which is configured for 10-Mbps, you need to reconfigure the end-station to operate at 100-Mbps.

Connector and cabling specifications for the 100BaseFX ports are in Appendix B, “Connectors and Cables.”

Connecting to the Switched 100-Mbps Fiber-Optic Ports



Warning Class 1 laser product.



Warning Avoid exposure to the laser beam.



Caution Do not remove the rubber plugs from the fiber-optic port or the rubber caps from the fiber-optic cable until you are ready to connect the cable. The plugs and caps protect the fiber-optic port and cable from contamination and ambient light.

Note This section provides information and procedures for connecting to the 100-Mbps fiber-optic ports (A and B), which use MT-RJ connectors. For information and procedures for connecting to the 100BaseFX port that uses a duplex SC connector, see the “Connecting to the Switched 100BaseFX Port” section on page 2-27.

You can connect the 100-Mbps fiber-optic ports (A and B) to 100BaseFX-compatible network device(s), such as servers, routers, and other switches. These ports use MT-RJ connectors, and you must use the appropriate MT-RJ fiber-optic patch cable to connect these ports to the SC or ST port(s) on the other 100BaseFX-compatible device(s).

You can order MT-RJ patch cables from your cable vendor, or you can order these cables from Cisco:

- CAB-MTRJ-SC-MM-1M (1-meter, MT-RJ-to-SC multimode cable)
- CAB-MTRJ-SC-MM-3M (3-meter, MT-RJ-to-SC multimode cable)
- CAB-MTRJ-SC-MM-5M (5-meter, MT-RJ-to-SC multimode cable)
- CAB-MTRJ-ST-MM-1M (1-meter, MT-RJ-to-ST multimode cable)
- CAB-MTRJ-ST-MM-3M (3-meter, MT-RJ-to-ST multimode cable)
- CAB-MTRJ-ST-MM-5M (5-meter, MT-RJ-to-ST multimode cable)

The fiber-optic wavelength of the ports is 1300 nanometers.

Connecting to the Switched 100-Mbps Fiber-Optic Ports

All fiber-optic connections between the switch and the attached device can be as follows:

- If the switch port is configured for half-duplex operation, you can connect the port to another device that is within 412 meters of the switch.
- If the switch port and the port on the attached device are configured for full-duplex operation, the connection can be over distances of up to 2 kilometers and provide up to 200 Mbps of bandwidth between the two devices.

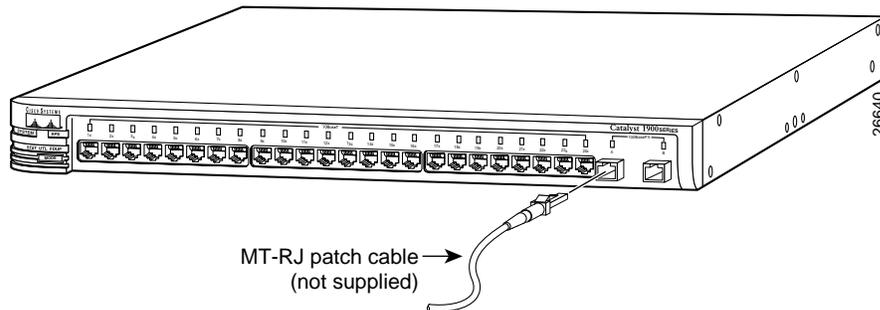
The default duplex mode of these ports is half duplex. To change the duplex mode of these ports to full-duplex or full-duplex flow control, use the switch manager, management console, or SNMP. (See the “Changing the Port Settings” section on page 3-15 or the “Port Configuration Menu” section on page 4-44.)

Note Duplex-mode autonegotiation is not supported on the 100-Mbps fiber-optic ports.

To connect a switch 100-Mbps fiber-optic port to another 100BaseFX device, follow these steps:

- Step 1** Remove the rubber plug from the port and the rubber cap from the cable connectors.
- Step 2** Connect one end of the MT-RJ patch cable to the 100-Mbps fiber-optic port on the switch. Figure 2-14 shows an MT-RJ patch cable being connected to one of the 100-Mbps fiber-optic ports on a Catalyst 1924F switch.

Figure 2-15 Connecting to the 100-Mbps Fiber-Optic Port



Connecting to the Switched 100-Mbps Fiber-Optic Ports

Step 3 Connect the other end of the cable to the SC or ST port of the network device.

Step 4 Make sure that the LED for the port that you connected in Step 1 turns on.

If the port LED is not on, look for the following problems:

- The network device is not on.
- The Ethernet adapter in the network device is not operating correctly.
- The cable is damaged or is not connected correctly.
- You are using the wrong type of cable.

If you are connecting the switch 100-Mbps port to an end-station, which is configured for 10-Mbps, you need to reconfigure the end-station to operate at 100-Mbps.

Step 5 Repeat Steps 1 through 4 for each device that you are connecting to the switch.

Connector and cabling specifications for the 100-Mbps fiber-optic ports are in Appendix B, “Connectors and Cables.”

Connecting to the Switched AUI Port

The AUI port on the switch can connect to an Ethernet transceiver, which is then connected to a 10-Mbps Ethernet device through thick coaxial, thin coaxial, fiber-optic, or UTP cable. You must provide the Ethernet transceiver and cable to connect the AUI port to the other network device. Supported network and device distances vary depending on the type of Ethernet AUI transceiver used.

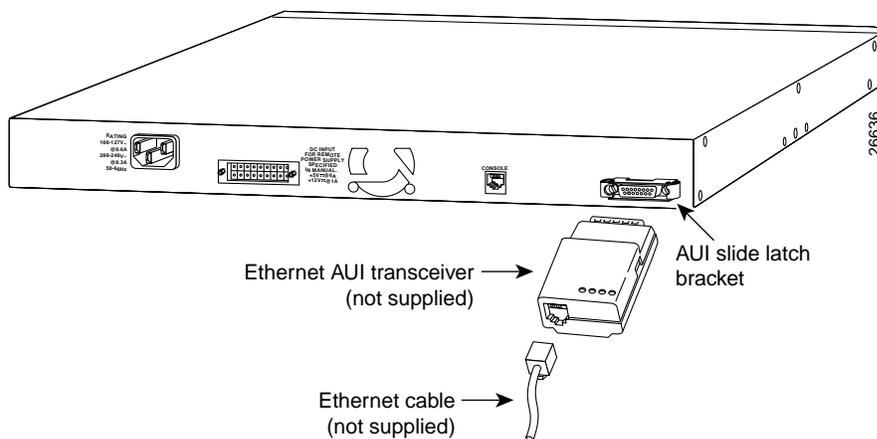
The type of cable you use (thick coaxial, thin coaxial, fiber-optic, or twisted-pair) depends on the AUI transceiver that you are using. For information about the cable types you can use, see the “Switched AUI Port” section on page 1-13.

Note Use a crossover cable if the transceiver is used to convert to a 10BaseT RJ-45 connector.

To connect the switch AUI port to an external transceiver, follow these steps:

- Step 1** Slide the AUI slide latch bracket to the right, and attach the appropriate external transceiver to the AUI port on the switch.
- Step 2** Slide the latch bracket to the left to lock the AUI transceiver to the port.
- Step 3** Connect one end of the appropriate cable to the port on the AUI transceiver, as shown in Figure 2-16.

Figure 2-16 Connecting to the AUI Port



Step 4 Connect the other end of the cable to the 10BaseT port of the network device.

Step 5 Check the LED on the AUI transceiver, or use the Port Management Page or the Port Configuration Menu (10BaseT Ports) to check the AUI port status.

If the port LED is not on, or if the port status is not “Enabled,” look for the following problems:

- The network device is not on.
- The Ethernet adapter in the network device is not operating correctly.
- The cable or transceiver is damaged or is not connected correctly.
- You are using the wrong type of cable.

If you are connecting the switch 10-Mbps port to an end-station, which is configured for 100-Mbps, you need to reconfigure the end-station to operate at 10-Mbps.

Connector and cabling specifications for the AUI port are in Appendix B, “Connectors and Cables.”

Accessing the Management Interfaces

You can choose to use the default settings of the switch or to use the management interfaces to configure and monitor the switch.

This section describes how to access the following management interfaces if the switch is not a cluster member:

- Catalyst 1900 Switch Manager
- Management console and CLI
- SNMP

Access to the management console or the CLI requires a direct connection to the switch console port or a Telnet session. Access to the Catalyst 1900 Switch Manager, Cluster Management applications, or SNMP requires a connection to one of the switch network ports.

If the switch is a cluster member, you can access its management interfaces through the command switch. For information about accessing the switch from the command switch, refer to the *Cisco IOS Desktop Switch Software Configuration Guide, Catalyst 2900 Series XL and Catalyst 3500 Series XL Cisco IOS Release 12.0(5)XP*.

Accessing the Switch Manager

Note You access the switch manager from a management station that is connected to one of the switch network ports. Therefore, make sure that you do not disable or otherwise misconfigure the port through which you are communicating with the switch. You might want to write down the port number to which you are connected. Make changes to the switch IP information with care.

To access the switch manager, your management station must have one of the supported browsers listed on Table 1-9 on page 1-16. The following sections describe how to configure your browser for web-based management:

- “Configuring Netscape Communicator 4.5, 4.51, or 4.61” section on page 2-35
- “Configuring Microsoft Internet Explorer 4.01a” section on page 2-35
- “Configuring Microsoft Internet Explorer 5.0” section on page 2-37

Configuring Netscape Communicator 4.5, 4.51, or 4.61

Note Netscape Communicator 4.60 is not a supported browser.

To configure Netscape Communicator, follow these steps:

- Step 1** Start Netscape Communicator.
- Step 2** From the menu bar, select **Edit > Preferences**.
- Step 3** In the Preferences window, click **Advanced**.
- Step 4** Select the **Enable Java**, **Enable JavaScript**, and **Enable style sheets** check boxes.
- Step 5** From the **Advanced** drop-down list, click **Cache**.
- Step 6** Select **Every time**.
- Step 7** Click **OK**.

Configuring Microsoft Internet Explorer 4.01a

To configure Microsoft Internet Explorer 4.01, follow these steps:

- Step 1** Start Internet Explorer.
- Step 2** From the menu bar, select **View > Internet Options**.
- Step 3** In the Internet Options window, click **Advanced**.
 - (a) Scroll through the list of options until you see Java VM. Select the **Java JIT compiler enabled** and **Java logging enabled** check boxes.
 - (b) Click **Apply**.
 - (c) Click **General**. In the Temporary Internet Files section, click **Settings**. The Settings window opens.
- Step 4** Click **Every visit to the page**, and click **OK**.

Accessing the Management Interfaces

- Step 5** In the Internet Options window, click **Security**.
- (a) In the Zone drop-down list, select **Trusted Sites Zone**.
 - (b) In the Trusted Sites Zone section, click **Custom**.
 - (c) Click **Settings**.
- Step 6** Select **Java > Java Permissions** section, and select **Custom**.
Click **Java Custom Setting**, which appears at the bottom of the window.
- Step 7** In the Trusted Sites Zone window, click **Edit Permissions**.
- (a) If the buttons under **Run Unsigned Content** are not available, select either **Medium** or **Low** security in the Reset Java Permissions list box. Click **Reset**.
 - (b) Under **Run Unsigned Content**, select **Enable**, and click **OK**.
- Step 8** In the Security Settings window, click **OK**.
- Step 9** In the Internet Options window, click **Security**.
- (a) Verify that the Zone drop-down list is set to **Trusted Sites Zone**.
 - (b) In the Trusted Sites Zone section, click **Add Sites**.
- Step 10** In the Trusted Sites Zone window, deselect the **Require server verification** check box.
- (a) In the **Add this Web site to the Zone** field, enter the IP address of the switch.
 - (b) Click **Add**, and then click **OK**.

Note If the switch is or will be a cluster member, you do not need to enter its IP address. However, if the switch does have an IP address and you want to leave open the possibility of direct management, perform this step.

- Step 11** In the Internet Options window, click **Apply**, and then click **OK**.

Configuring Microsoft Internet Explorer 5.0

Note During the installation of this browser, make sure to select the **Install Minimal or Customize Your Browser** check box. Then in the Component Options window, in the Internet Explorer 5 section, make sure to select the **Microsoft Virtual Machine** check box so that you can display applets written in Java.

To configure Microsoft Internet Explorer 5.0, follow these steps:

- Step 1** Start Internet Explorer.
- Step 2** From the menu bar, select **Tools > Internet Options**.
- Step 3** In the Internet Options window, select the **Security** tab.
- Step 4** Select the **Trusted sites** icon, and click **Sites...**
- Step 5** In the Trusted Sites Zone window, deselect the **Require server verification** check box.
 - (a) In the **Add this Web site to the Zone** field, enter the IP address of the switch.
 - (b) Click **Add**, and then click **OK**.

Note If the switch is or will be a cluster member, you do not need to enter its IP address. However, if the switch does have an IP address and you want to leave open the possibility of direct management, perform this step.

- Step 6** After you have finished entering the URLs for your switches, click **OK**.
- Step 7** While still in the Security tab of the Internet Options window, click **Custom Level...**
- Step 8** In the **Security Settings** window, scroll to the **Java > Java permissions** section.
If you do not see this section, you need to reinstall the browser, and follow the instructions in the note at the beginning of this procedure.

Accessing the Management Interfaces

- Step 9** Click **Custom**.
This enables the **Java Custom Settings...** button.
- Step 10** Click **Java Custom Settings...**
- Step 11** In the Trusted Sites window, click **Edit Permissions**.
- Step 12** In the **Run Unsigned > Run Unsigned Content** section, click **Enable**.
- Step 13** Click **OK** to close the Trusted Sites window.
- Step 14** Click **OK** to close the Security Settings window.
- Step 15** Click **OK** to close the Internet Options window.

Displaying the Switch Manager

This section describes how to display the switch manager if the switch has its own IP address (as described in the “Assigning IP Information and a Password to the Switch” section on page 2-19). For information about using the command switch to display the web-interface of cluster members, see the *Cisco IOS Desktop Switch Software Configuration Guide, Catalyst 2900 Series XL and Catalyst 3500 Series XL Cisco IOS Release 12.0(5)XP*.

Note Displaying the switch manager requires the privileged-level password for the switch or the password for the command switch. For information about passwords, see the “Assigning IP Information and a Password to the Switch” section on page 2-19.

To display the switch manager, follow these steps:

Step 1 As in the following illustration, enter the switch IP address in the Location field if you are using Communicator (the Address field if you are using Internet Explorer).

If the switch is a cluster member and does not have its own IP address, you need to use the command-switch IP address to display the Catalyst 1900 Switch Manager from a command switch Cluster Management application.

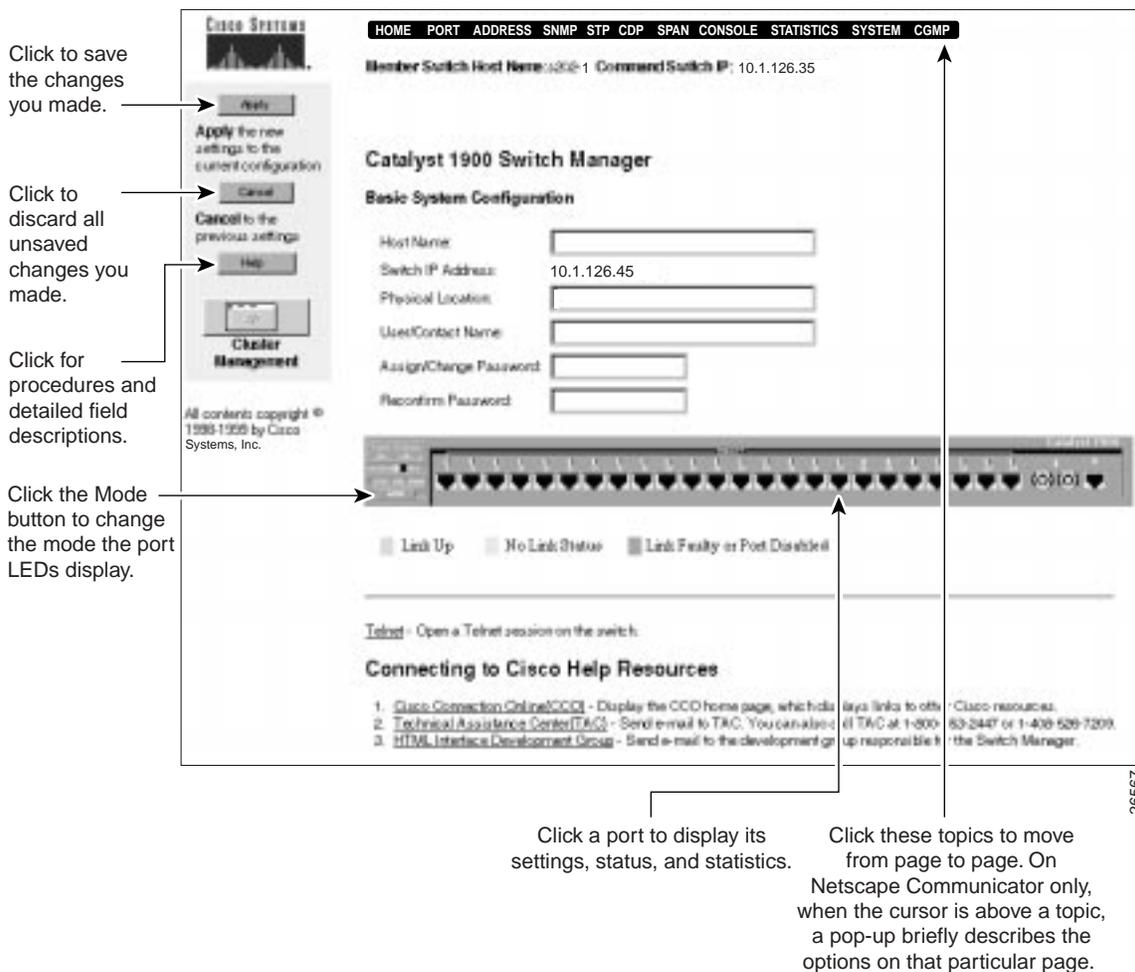


Accessing the Management Interfaces

Step 2 Enter the switch password or, if the switch is a cluster member, the command-switch password at the prompt.

The switch manager Home Page is displayed (Figure 2-17).

Figure 2-17 Home Page



Continue to configure or monitor the switch from the switch manager, as described in Chapter 3, “Configuring and Monitoring from the Switch Manager.”

Note You can bookmark the switch IP address to retrieve the switch manager for later use. If you are using Communicator, choose the **Communicator** menu option, and select **Bookmarks>Add Bookmark**. If you are using Internet Explorer, choose the **Favorites** menu option, and select **Add to Favorites**. Do not use the right mouse-button to bookmark the switch IP address; doing so only saves the specific frame (image) of the switch manager page.

Accessing the Management Console and CLI

To access the management console, follow these steps:

- Step 1** Start up the emulation software (such as ProComm, HyperTerminal, tip, or minicom) on the management station.
- Step 2** Establish a connection with the switch by either
- Connecting the switch console port to a management station or dial-up modem. For complete information, see the “Connecting to the Console Port” section on page 2-16.
 - Using any Telnet TCP/IP package from a remote management station. The switch must have network connectivity with the Telnet client, and a switch password must have been configured.

The switch supports up to seven simultaneous Telnet sessions. Changes made by one Telnet user are reflected in all other Telnet sessions.

After you connect through the console port or through a Telnet session, the Management Console Logon Screen (Figure 2-18) is displayed on the management station.

Accessing the Management Interfaces

Figure 2-18 Management Console Logon Screen

```
Catalyst 1900 Management Console
Copyright (c) Cisco Systems, Inc. 1993-1999
All rights reserved.
```

```
Standard Edition Software
Ethernet address:      00-E0-1E-7E-B4-40
```

```
PCA Number: 73-2239-01
PCA Serial Number: SAD01200001
Model Number: WS-C1924-A
System Serial Number: FAA01200001
-----
```

```
User Interface Menu
```

```
[M] Menus
```

```
Enter Selection:
```

Note Figure 2-18 shows that a privileged-level password and IP address already exist for the switch. Otherwise, the [I] IP Address and [P] Console Password options are displayed so that you can assign the information. If you have the Cisco Catalyst 1900/2820 Enterprise Edition Software installed on the switch, the [K] Command Line option is displayed. Use this option to display the CLI.

Step 3 Enter the **[M] Menus** option on the Management Console Logon Screen.

Step 4 Enter the switch password or, if applicable, the command-switch password at the prompt.

The Management Console Main Menu (Figure 2-19) is displayed.

Figure 2-19 Management Console Main Menu

```
Catalyst 1900 - Main Menu

[C] Console Settings
[S] System
[N] Network Management
[P] Port Configuration
[A] Port Addressing
[D] Port Statistics Detail
[M] Monitoring
[B] Bridge Group
[R] Multicast Registration
[F] Firmware
[I] RS-232 Interface
[U] Usage Summaries
[H] Help

[X] Exit Management Console

Enter Selection:
```

Continue to configure or monitor the switch from the management console, as described in Chapter 4, “Configuring and Monitoring from the Management Console.”

Accessing MIB Files

You can access the switch MIB files through SNMP to configure and monitor the switch.

Note Wait approximately 1 minute for the changes to be saved to permanent storage before turning off the switch, or the changes might not be saved.

If you are going to manage the switch by using SNMP and the MIB files, the Read and Write community strings need to be set. To do this, you can either

- Use the default community strings
 - Read community string. The default is public.
 - Write community string. The default is private.
- Assign community strings on the SNMP Management Page (Figure 3-7) or the Network Management (SNMP) READ Configuration Menu (Figure 4-10) and Network Management (SNMP) WRITE Configuration Menu (Figure 4-11).

You can obtain a copy of the MIB files using File Transfer Protocol (FTP) to access the ftp.cisco.com server.

To obtain a MIB file, follow these steps:

- Step 1** Use FTP to access the server ftp.cisco.com, or enter ftp.cisco.com from your browser.
- Step 2** Log in with the username *anonymous*.
- Step 3** Enter your e-mail name when prompted for the password.
- Step 4** At the ftp> prompt, change directories to /pub/mibs/supportlists/wsc1900.
- Step 5** Use the **get supportlist.html** command to get a list of the supported MIB files.
- Step 6** Change directories to /pub/mibs/v1.
- Step 7** Get the MIB files.